## CLAIMS

What is claimed is:

1. A method for leading macromolecule substances into living target cells, comprising:

(1) picking up three-dimensional (3D) structure images of a tissue or organ where the target cells locate;

(2) picking up 3D blood vessel photographic images of the tissue or organ where the target cells locate;

(3) merging the 3D structure images into the 3D blood vessel photographic images, choosing a blood vessel passage fully covering the target cells for transmitting the macromolecule substances;

(4) injecting tiny bubbles by using a pipe along the chosen blood vessel passage, the tiny bubbles being arranged around the target cells, energy being exerted for forming non-permanent holes in cell membranes of the target cells; and

(5) injecting the macromolecule substances into the target cells through the non-permanent holes in cell membranes along the chosen blood vessel passage.

2. The method as claimed in claim 1, wherein the 3D structure images are picked up by computed tomography (CT).

3. The method as claimed in claim 1, wherein the 3D blood vessel photographic images are picked up by magnetic resonance imaging (MRI).

4. The method as claimed in claim 1, wherein the 3D blood vessel photographic images are achieved by using 3D reconstructed blood vessel photography.

5. The method as claimed in claim 1, wherein the volume of the tiny bubble is smaller than 10 micron.

6. The method as claimed in claim 1, wherein the energy exerted for forming non-permanent holes in cell membranes of the target cells has an intensity of at least 1 Mpa.

7. The method as claimed in claim 1, wherein the macromolecule substances is injected into the target cells by using a pipe.

8. A method for leading macromolecule substances into living target cells, comprising:

(1) picking up three-dimensional (3D) structure images of a tissue or organ where the target cells locate;

(2) picking up 3D blood vessel photographic images of the tissue or organ where the target cells locate;

(3) merging the 3D structure images into the 3D blood vessel photographic images, choosing a blood vessel passage fully covering the target cells for transmitting the macromolecule substances;

(4) injecting synthetic blood by using a pipe along the chosen blood vessel passage, energy being exerted for forming non-permanent holes in cell membranes of the target cells; and

(5) injecting the macromolecule substances into the target cells through the non-permanent holes in cell membranes along the chosen blood vessel passage.

9. The method as claimed in claim 8, wherein the energy exerted for forming non-permanent holes in cell membranes of the target cells is ultrasonic wave having an intensity of at least 1 Mpa.

10. The method as claimed in claim 8, wherein the macromolecule substances is injected into the target cells by using a pipe.

11. The method as claimed in claim 9, wherein the step of the macromolecule substances being injected around the target cells by using a pipe is performed before the forming of the non-permanent holes in cell membranes of the target cells.

12. A method for leading macromolecule substances into living target cells, comprising:

(1) picking up three-dimensional (3D) structure images of the tissue or organ where the target cells locate;

(2) injecting ultrasonic wave developer, picking up 3D blood vessel photographic images of the tissue or organ where the target cells locate;

(3) merging the 3D structure images into the 3D blood vessel photographic images, choosing a blood vessel passage fully covering the target cells for transmitting the macromolecule substances;

(4) exerting energy for activating the ultrasonic wave developer to perform biological effects, thereby forming non-permanent holes in the cell membranes of the target cells; and

(5) injecting the macromolecule substances into the target cells through the non-permanent holes in cell membranes along the chosen blood vessel passage.

13. The method as claimed in claim 12, wherein the volume of the ultrasonic wave developer is smaller than 10 micron.

14. The method as claimed in claim 12, wherein the macromolecule substances is injected into the target cells by using a pipe.

15. The method as claimed in claim 12, wherein the step of the macromolecule substances being injected around the target cells by using a pipe is performed before the forming of the non-permanent holes in cell membranes of the target cells.

16. The method as claimed in claim 12, is used in one of the gene delivery, gene therapy, medicine transmission, partial medication and solid tumor treatment.

17. A system for leading macromolecule substances into living target cells, comprising:

an image picking unit, the image picking unit used for picking up the three-dimensional (3D) structure images of the tissue or organ where the target cells locate, and the 3D blood vessel photographic images of the tissue or organ where the target cells locate;

an image merging unit, the image merging unit used for merging the 3D structure images into the 3D blood vessel photographic images, therefore choosing a blood vessel passage fully covering the target cells for transmitting the macromolecule substances;

an injection unit, the injection unit used for injecting liquid and transmitting the macromolecule substances to the target cells;

an energy conversion module, the energy conversion module used for exerting energy to activate the liquid to perform biological effects, thereby forming non-permanent holes in the cell membranes of the target cells; wherein

the macromolecule substances enter into the target cells through the non-permanent holes in the cell membranes thereof.

18. The system as claimed in claim 17, wherein the image picking unit is one of the computed tomography (CT) device and magnetic resonance imaging (MRI) device and blood vessel photographic device.

19. The system as claimed in claim 17, wherein the 3D blood vessel photographic images are obtained by using 3D reconstructed blood vessel photography.

20. The system as claimed in claim 17, wherein the liquid is one of the tiny bubbles liquid and synthetic blood and ultrasonic wave developer.

21. The system as claimed in claim 20, wherein the volume of one of the tiny bubbles liquid and synthetic blood and ultrasonic wave developer is smaller than 10 micron.

22. The system as claimed in claim 17, wherein the energy exerted by the energy conversion module is ultrasonic wave.

23. The system as claimed in claim 17, wherein the energy conversion module is an ultrasonic wave conversion module.

24. The system as claimed in claim 23, wherein the ultrasonic wave conversion module generates ultrasonic waves of at least 1 Mpa intensity.

25. The system as claimed in claim 17, is used in one of the gene delivery, gene therapy, medicine transmission, partial medication and solid tumor treatment.

26. The system as claimed in claim 17, wherein the system for leading macromolecule substances into living target cells further comprises a data processing electronic device.

27. The system as claimed in claim 22, wherein the energy conversion module is an ultrasonic wave conversion module.

28. The system as claimed in claim 17, wherein the system for leading macromolecule substances into living target cells further cooperates with a data processing electronic device.

29. The system as claimed in claim 25, wherein the data processing electronic device comprising:

a display unit, the display unit is used for showing the images merging process performed by the image merging unit, the medicine injection process performed by the injection unit, and energy transmitting situation of the energy conversion module; and

an input unit, the input unit is used for inputting commands and/or parameters of the system for leading macromolecule substances into living target cells of present invention to the data processing electronic device.

30. The system as claimed in claim 26, wherein the data processing electronic device comprising:

a display unit, the display unit is used for showing the images merging process performed by the image merging unit, the medicine injection process performed by the injection unit, and energy transmitting situation of the energy conversion module; and

an input unit, the input unit is used for inputting commands and/or parameters of the system for leading macromolecule substances into living target cells of present invention to the data processing electronic device.

31. The system as claimed in claim 25, wherein the data processing electronic device is one of the personal computer (PC), notebook computer (NB), server, working station, personal digital assistant (PDA), Liquid Crystal Display (LCD) computer, and tablet PC.

32. The system as claimed in claim 26, wherein the data processing electronic device is one of the personal computer (PC), notebook computer (NB), server, working station, personal digital assistant (PDA), Liquid Crystal Display (LCD) computer, and tablet PC.